REQUEST FOR PROPOSAL
Addendum # 4

ADDENDUM DATE: September 7, 2004

RFP Title:	**On-Board Systems / Communication Center System**
RFP Number:	**04-001PR**
Due Date/Time:	**October 14, 2004- 2:00 P.M.**
Buyer:	Paul Russell, *paul.russell@metrokc.gov* , 206-684-1054

Q#	SUBSECTION	QUESTION	ANSWER
GENERAL CONTRACT QUESTIONS			
1.		Is ERG barred from being a prime or a sub on this particular contract?	**CLARIFICATION:** ERG did not attend the mandatory Pre-Proposal Conference and so would not be eligible to be a prime proposer. For guidance on whether ERG could be a subcontractor of a prime proposer, please see Circular C-4220.1E issued by the Federal Transit Administration (FTA). See also Answer 17 of Addendum No. 3. In any event, ERG has informed us that it is not interested in acting as a subcontractor on the OBS/CCS contract.
Part A, SECTION 1, Proposal Preparation			
2.	Subsection 1.H.6, Site Visits		**ADD:** new paragraphs to end of subsection Both Tours are MANDATORY - Due to limited availability of tour times, proposers will need to have at least one representatives attend each tour. Those attending the: 1- OBS Tour will not be able to see either the existing Communications Center or the existing Radio/AVL system demonstration. 2- CCS Tour may be able to view a limited number of vehicles at the Transit Base after the CCS Tour concludes. **PRIME:** Those firms having representatives that attended both Preproposal Tours (OBS and CCS) will be qualified to propose as a Prime contractor. **SUBCONTRACTOR (to Prime):** Those firms with none or only one person attending the Preproposal Conference. Subcontractors are not allowed to propose as a Prime**.**
3.	Subsection 1.T.2, Volume 5, Tab A. Attachments		**CLARIFICATION:** See Answer 18 in Addendum 3. This change completes the required corrections. **DELETE:** Tab A – Attachments A, G, H, O, and P **REPLACE WITH:** Tab A – Attachments A, **F**, H, O, and P

This Request for Proposal Addendum will be provided in alternative formats such as Braille, large print, audiocassette or computer disk for individuals with disabilities upon request.

Q#	SUBSECTION	QUESTION	ANSWER
4.	Subsection 1.T.3, Volume 1, TAB A. References and Proposer Information		**DELETE:** from second bulleted list under *References* • Description of the level of integration and interfaces developed. • General description quantity of products provided. • ~~Reliability~~ performance figures for the operational system **REPLACE WITH:** • Description of the level of integration and interfaces developed. • General description quantity of products provided. • **Availability** performance figures for the operational system
5.	Section 1.T.3, Volume 4, <u>TAB B</u>. Level 2 Pricing (Page 18)	How much time will be allowed to review the County's CCS code?	**CLARIFICATION:** Attachment One to this addendum details the process for conducting the CCS Upgrade Assessment as part of the Phase III Evaluation. See Answer No. 9 below.
6.	Section 1.T.3, Volume 4, <u>TAB B</u>. Level 2 Pricing (Page 18)	What is KCM's estimated schedule for requesting submission of Level 2 pricing?	**CLARIFICATION:** The schedule for the submission of Level 2 pricing will be determined by the number of proposals received by the County, and whether those proposals include the Upgrade Alternative. If no Upgrade proposals are received, the County may issue a request for Level 2 Pricing and OBS/ CCS Software Maintenance Pricing within 20 calendar days, as described in Part A, Subsection 1.T.3, Volume 4.

Part A,   SECTION 2,   Proposal Evaluation and Contract Award

Q#	SUBSECTION	QUESTION	ANSWER
7.	Subsection 2.C.3.2. Additional Questions to Proposers		**ADD:** Item c c. Are any lawsuits; Federal, State or Local Tax Liens; or any potential claims or liabilities pending against you, your firm, or the officers of the firm at this time?
8.	Subsection 2.E.1.2. Minimum technical and functional qualification		**CLARIFICATION:** This is requirement is appropriately covered in Part B, Section 41.0 Intellectual Property. **DELETE:** item 1 in its entirety 1. ~~Certify that open, published Interface Control Documents (ICD) will be provided for every subsystem interface, as defined in Appendix M, Glossary.~~

9.	E.3.2 CCS evaluation		**ADD:** two new subsections shown below in Attachment One:
			    2.E.3.2.1 CCS Replacement Benchmark Testing Process &
			    2.E.3.2.2 CCS Upgrade Assessment Process

Part A,   Attachment O,   Proposal Checklist

Q#	SUBSECTION	QUESTION	ANSWER
10.	INCLUDED IN SUBMITTAL, Volume 5, TAB B		**ADD:** two additional questions (___) Provide a response to the following: **Are the attached financial statements the financial statements of the organization submitting this pro-posal? If not, explain the relationship and financial responsibility of the organization whose financial statements are provided.** **Will the organization whose financial statements are attached act as guarantor of the contract for the goods and services procured under this RFP?** Are any lawsuits; Federal, State or Local Tax Liens; or any

Q#	SUBSECTION	QUESTION	ANSWER
			potential claims or liabilities pending against you, your firm, or the officers of the firm at this time?

Part C,   SECTION 1   OBS/CCS Business Requirements

Q#	SUBSECTION	QUESTION	ANSWER
11.	Subsection 1.B.4.5 Destinations Signs; Table 1.B.4.5. Destination Sign Types; **Table 1**.C.5. 2006 Fleet and OBS Equipment Plan	Please provide the part numbers of the existing/planned Luminator ODKs and the TwinVision OCUs.	**CLARIFICATION:** The Luminator part numbers are 510204-101 (ODK) and 510453-003 (ODK II). The TwinVision unit is 916-001.
12.	**Addendum 3** Answers 27 & 31	Is the Diagnostics available via J1708?	**CLARIFICATION:** If the reference is to diagnostics for the destination sign systems, we are not aware that they exist. KCM does run a display test program (which is just an elaborate destination display in the master data file) on all of our sign systems. Whether there is any capability to monitor the health of the sign system as described in the Level 1 use case, RV5-Monitor System Health would need to be addressed with the OEM. See also Answers 27 and 31 in Addendum 3.
13.	Subsection 1.C.7.2, Figure 1.C.7.2. RFCS LIM Architecture	Please confirm that KCM, via the RFCS procurement, will be providing the Ethernet hub for the OBS system as part of the LIM architecture. Please specify the make and model or equivalent specifications for this device.	**CLARIFICATION:** See Answer 19 of Addendum No. 2. The RFCS project is evaluating both Cisco's 1300 Wireless Bridge and the 3200 Mobile Access Router as the wireless communications hub for on-board equipment. If the 1300 is selected, an Ether-net hub will be provided by ERG. If the 3200 is chosen, an Ethernet hub will not be required. The design decision is being made this month and will be provided by addenda as soon as possible thereafter. Product descriptions will also be provided.

  General Questions from Pre-Proposal Conference

Q#	SUBSECTION	QUESTION	ANSWER
14.	VM Tour	Operator returns bus from service with a defect; what happens?	**CLARIFICATION:** Currently, the following steps are taken when an operator returns a bus with a defect from service to the operating base: • Operator verbally reports vehicle work request to hostler, • Operator parks the bus on maintenance lane as directed by hostler, • Operator fills out an Operator Request (OR) form at Base Window, • OR form is physically brought to VM, and • OR form is entered into VM's automated work order system. **Note**: There would also be a CSR entry (more than likely) about the problem if the operator reported the defect to the coordinator.
15.	Fleet Tour	Is automated system tied in with other systems? Is there a use for flow of data to other systems? (vendor is interested in what our Automated VM systems are)?	**CLARIFICATION:** Currently there is no automated flow of on-board VM data to any Base maintenance software system. On-board data is collected by manually connecting a portable PC or PDA to a specific device and downloading information as needed (see answer to following question). In the future,

Q#	SUBSECTION	QUESTION	ANSWER
			KCM hopes to develop an automated interface for the data stream collected by the OBS system to an upgraded maintenance software system.
16.	Fleet Tour	How do we collect APC data now?	**CLARIFICATION:** APC data is collected on board the vehicle by connecting a laptop computer or PDA directly to the APC unit and downloading data. The laptop or PDA is then plugged into a KC WAN connection and the data is transferred to database servers.
17.	Fleet Tour	How do we collect video data from the on-board security camera system?	**CLARIFICATION:** The on-board security camera system (DVRS) off-loads video data by 802.11b wireless link when at an operating base. See Part C, Subsections 1.B.4.7. Digital Video Recording System (DVRS) and 1.B.4.8. Wireless Data On/Offload System (WDOLS).
18.	Fleet Tour	Do we have a graphical representation of odometer accuracy? How do we determine accuracy of the odometer?	**CLARIFICATION:** We do not have a graphical representation of odometer accuracy. Its accuracy is stated as having an error of 2-1/2% maximum between two know points (fixed references).
19.	Fleet Tour	With references to the hybrid coach (Fleet No. 2600 – New Flyer/60' hybrid), with J2496 cabling, how many hubs?	**CLARIFICATION:** There are no hubs. Only the cable is installed. It is not terminated and has loops left available for future use. See also Answer 27 of Addendum 3.
20.	Fleet Tour	With reference to the 4200 (Breda 60" trolley), where is the radio located?	**CLARIFICATION:** The radio is located behind the driver's seat.
21.	Fleet Tour	With reference to the 3200 (Gillig/40'diesel), what engine controllers are on this vehicle?	**CLARIFICATION:** KCM intends to provide this type of detail during design. If desired, feel free to contact the vehicle manufacturer for this information.
22.	CAD/AVL Demonstration	Can you see the Exchange Building from Central Base?	**CLARIFICATION:** No.

Part C,   SECTION 2   Level 1 Requirements

Q#	SUBSECTION	QUESTION	ANSWER
23.	Subsection 2.A.2.2. Test Equipment		**CLARIFICATION:** KCM will be providing selected items of legacy equipment for interface testing purposes during the Factory Acceptance Tests. Also, see Answer 24 below. **ADD:** to subsection The Contractor shall be responsible for furnishing sufficient quantities of all Contractor-provided subsystems for each level of testing. KCM will provide **necessary** legacy subsystem equipment early in the design phase for system design and development and for Factory Acceptance Testing (FAT).
24.	Subsection 2.A.2.3.1. Factory Acceptance Tests (FAT)		**CLARIFICATION:** see above answer. **ADD**: to subsection Factory Acceptance Testing shall be performed to ensure that the Contractor-provided systems and subsystems, and **interfaces to the provided** legacy subsystems, meet all functional and environmental requirements and specifications. Factory Acceptance Testing is performed prior to on-site installation and is a task required for

Q#	SUBSECTION	QUESTION	ANSWER
			completion of the Pilot Readiness Acceptance Milestone.
25.	Subsection 2.A.2.6. Prototype Installation Testing	This section states that all FAT testing (2.A.2.5) is to be performed after installation on one of each bus type. The FAT section includes environmental and other tests that are not practical to be performed on a system installed on a revenue vehicle. Will KCM accept an installation Acceptance Test Procedure (ATP) be used for each bus installation instead of the FAT testing?	**ADD:** to subsection All FAT requirements **for Functional and Human Factors Testing** shall be repeated on site after the Level 1 systems and a complete set of connected subsystems are installed on one vehicle of each fleet type **(see Subsections 2.A.2.5.2 and 2.A.2.5.5)**. The purpose of this testing is to ensure that all installation and operational requirements are met on board the Revenue Vehicle. This set of vehicles will constitute the prototype installation set and undergo the Prototype Field Testing described below.
26.	Subsection 2.A.2.9.1 Acceptance Testing Settling-in Period	Please provide clarification of the definition of "High-transaction-volume equipment of the same type" and "low-transaction-volume."	**CLARIFICATION:** Subsections 2.A.2.9.1 and 2.A.2.9.3 (also see Answer to following Question) have been modified to reflect changes required by the removal of requirements for "high-transaction-volume" and "low-transaction-volume" equipment, and "MOHBF" criteria. **DELETE:** portion of subsection **2.A.2.9.1. Acceptance Testing Settling-in Period** The initial period of time following the completion of installation shall be designated as the Acceptance Testing Settling-in period. a. The Acceptance Testing Settling-in period will last for at least 30 days of revenue service prior to beginning Acceptance Testing. b. During the Acceptance Testing Settling-in period, the Failure Review Team shall establish a failure review test process. c. At the end of the Acceptance Testing Settling-in period, the Mean ~~Transactions~~ Between Failures (MTBF) for ~~high-transaction-volume equipment of the same type shall be not less than 40% of the MTBFs~~ presented in Subsection 2.A.1.4.6.1, Equipment Reliability Requirements for each type of ~~Level 1~~ equipment. d. ~~For equipment of the same type in a low-transaction-volume environment, the mean operating hours between failures (MOHBF) in a group shall be not less than 40% of the mean hours between failures~~ presented in Subsection 2.A.1.4.6.2, Availability~~, for each type of Level 1 equipment~~. e. If at the end of the Acceptance Testing Settling-in period the above MTBF and ~~mean operating hours between failures (MOHBF)~~ criteria are not met, then the reliability of the equipment shall be monitored until these criteria are met for 30 consecutive days. f. Acceptance testing shall not commence until the MTBF and ~~MOHBF~~ requirements described in this section are met.

Q#	SUBSECTION	QUESTION	ANSWER

			REPLACE WITH:
			
			2.A.2.9.1. Acceptance Testing Settling-in Period
			
			The initial period of time following the completion of installation shall be designated as the Acceptance Testing Settling-in period.
			
			   a. The Acceptance Testing Settling-in period will last for at least 30 days of revenue service prior to beginning Acceptance Testing.
			
			   b. During the Acceptance Testing Settling-in period, the Failure Review Team shall establish a failure review test process.
			
			   c. At the end of the Acceptance Testing Settling-in period, the Mean **Time** Between Failures (MTBF) **shall meet or exceed the proposed and accepted specification** presented in Subsection 2.A.1.4.6.1, Equipment Reliability Requirements for each type **or group** of equipment.
			
			   d. **System availability shall not be less than 90% of the proposed and accepted specification presented** in Subsection 2.A.1.4.6.2, Availability.
			
			   e. If at the end of the Acceptance Testing Settling-in period the above MTBF and **system availability** criteria are not met, then the reliability of the equipment**/system** shall be monitored until these criteria are met for 30 consecutive days.
			
			   f. Acceptance testing shall not commence until the MTBF and **Availability** requirements described in this section are met.

27.	Subsection 2.A.2.9.3. Acceptance Test Requirements		**DELETE:** portion of subsection
			
			2.A.2.9.3. Acceptance Test Requirements
			
			At the end of the settling-in period, Acceptance Testing shall begin and shall be conducted over a minimum of ~~90 days~~ under revenue service conditions. This time period shall be required for both types of ~~Acceptance Testing, Base Equipment Acceptance Testing,~~ and full Level 1 Conditional Acceptance Testing. Specific requirements are as follows:
			
			~~a. The Acceptance Testing shall be conducted in three performance periods related to the reliability of the system. The MTBF and MOHBF requirements during the Acceptance Testing shall be incrementally increased from the settling-in-period values in 60 consecutive-day periods as follows:~~
			
			   ~~i. 0-30 days: 60% of the MTBF and mean hours of operation between failures specified in Subsection **2.A.1.4.6.1.** for each type of OBS/CCS equipment.~~
			
			   ~~ii. 31-60 days: 80% of the MTBF and mean hours of operation between failures specified in Subsection **2.A.1.4.6.1.** for each type of Level 1 equipment.~~

Q#	SUBSECTION	QUESTION	ANSWER
			~~iii. 61-90 days: 100% of the MTBF and mean hours of operation between failures specified in Subsection **2.A.1.4.6.1.** for each type of Level 1 equipment.~~ b. ~~Each subsequent Acceptance Testing period shall not commence until all requirements specified for the previous period of testing have been met.~~ c. ~~During the Acceptance Testing period, chargeable failures shall be identified and recorded per Subsection 2.A.2.4.6, Test Failure Resolution.~~ d. ~~Within 15 days following the completion of each period of Acceptance Testing, the Contractor shall provide all testing data, documentation, reports, and all other related information to the KCM Project Manager.~~ e. ~~For any single group, if after 60 consecutive days, the MTBF and MOHBF for that period has not been met, the Acceptance Testing shall continue beyond the 60 consecutive days until the equipment has achieved the applicable reliability requirement.~~ f. ~~Under no circumstances shall the Acceptance Testing for any group be allowed to proceed to the next 30-consecutive-day test period until the previous criteria has been met by that group.~~ g. ~~For each group, the MTBF for high-transaction-volume devices for a given 30-consecutive-day period shall be derived by summing all the transactions for the 30-consecutive-day period for that group and device type and dividing by the number of chargeable failures recorded during that period for that group and device type.~~ h. ~~If for any reason a test period is not comprised of 30 consecutive days, then the average MTBF shall be calculated by summing the transactions and chargeable failures for each individual test period, totaling not less than 30 days of test data.~~ i. ~~Should the equipment fail to meet the performance requirements as specified herein, the Contractor shall make such improvements to the equipment and/or systems as are needed to meet the requirements.~~ j. ~~The Contractor shall continue to improve Level 1 equipment and systems until the Contract requirements are met.~~ k. ~~KCM reserves the right to limit the migration of the installed equipment if the Acceptance Test requirements are not being met.~~ **REPLACE WITH:** **2.A.2.9.3. Acceptance Test Requirements** At the end of the settling-in period, Acceptance Testing shall begin and shall be conducted over a minimum of **90 consecutive days** under revenue service conditions. This time period shall be required for both types of **Acceptance Testing: Base Equipment Acceptance Testing** and full Level 1 Conditional Acceptance Testing. Specific requirements are as follows:

Q#	SUBSECTION	QUESTION	ANSWER
			a. During Acceptance Testing, systems and equipment shall meet or exceed MTBF and Availability requirements:
			i. 100% of the MTBF requirements specified in Subsection 2.A.1.4.6.1, Equipment Reliability Requirements, for each type of OBS/CCS equipment.
			ii. System availability shall be not less than 99.9% as described in Subsection 2.A.1.4.6. 2, Availability.
			b. During the Acceptance Testing period, chargeable failures shall be identified and recorded per Subsection 2.A.2.4.6, Test Failure Resolution.
			c. Within 15 days following the completion of 60 consecutive days of Acceptance Testing, the Contractor shall provide all testing data, documentation, reports and all other related information to the KCM Project Manager.
			d. If after 60 consecutive days, the MTBF and Availability requirements for that period have not been met, the Acceptance Testing shall continue until the equipment has achieved the applicable reliability requirement.
			e. Should the equipment fail to meet the performance requirements as specified herein, the Contractor shall make such improvements to the equipment and/or systems as are needed to meet the requirements.
			f. The Contractor shall continue to improve equipment and systems until the Contract requirements are met.
			g. KCM reserves the right to limit the migration of the installed equipment if the Acceptance Test requirements are not being met.
28.	Subsection 2.A.2.9.3. Acceptance Test Requirements, Item "a"	Should this read 30 consecutive days as outlined in "i", "ii", and "iii" immediately following.	**CLARIFICATION:** See revisions to Subsection 2.A.2.9.3. in Answer 27 above.
29.	2.A.2.9.3 Acceptance Test Requirements, Item "a" and "i"	Please provide definition of MOHBF. Section 2.A.1.4.6.1 only defines the MTBF.	**CLARIFICATION:** See revisions to Subsection 2.A.2.9.3. in Answer 27 above.
30.	2.A.2.9.3 Acceptance Test Requirements, Item "e", "f" and "g"	What is the definition of "group" in these items?	**CLARIFICATION:** See revisions to Subsection 2.A.2.9.3. in Answer 27 above.
31.	2.A.2.9.3 Acceptance Test Requirements, Item "e"	Should this read 30 consecutive days (2 places)?	**CLARIFICATION:** See revisions to Subsection 2.A.2.9.3. in Answer 27 above.
32.	Subsection 2.A.3.1.2.2. Pre-Design Phase Deliverables	Will it be acceptable to schedule Deliverables Number P1 through P12 as reflected in Table 2.A.3.1.2.2 60 days after receiving the	**CLARIFICATION:** KCM agrees that it will be acceptable for the chosen Contractor to schedule delivery of the Pre-Design Phase Deliverables listed in Table 2.A.3.1.2.2. for 60 days after the receiving the Contract's Notice to Proceed from KCM.

Q#	SUBSECTION	QUESTION	ANSWER
		Notice to Proceed or is some other minimum period of time required.	**ADD:** to first sentence Prior to the Design Phase (pre-design) **and no more than 60 days after receipt of the Contract's Notice to Proceed from KCM**, the Contractor will be responsible for providing certain deliverables as outlined in Table.2.A.3.1.2.2, Levels 1 & 2 Pre-Design Phase Deliverables shown below.
33.	Subsection 2.A.3.1.2.2. Pre-Design Phase Deliverables	With regard to Milestone Numbers L1.P1.M1 and L2.P1.M1, can Deliverable Number P3, the Plan for Agency/Contractor Requirements Review be satisfied during the Preliminary Design Review or must a separate review/meeting be established specifically for Deliverable Number P3.	**CLARIFICATION:** KCM expects to hold a meeting with the chosen Contractor shortly after Contract award to review all contract requirements. This "requirements walk through" meeting is to take place prior to the start of any design work or delivery of any Contract Deliverables. KCM expects that Deliverable No. P3, the Plan for Agency/Contractor Requirements Review, will incorporate the results of this meeting; listing all clarifications, definitions, and any other material information. The actual deliverable, the Plan for Agency/Contractor Requirements Review, does not require a separate review/meeting from other Pre-Design Phase Deliverables.
34.	Subsection 2.A.3.5. Requirements Management	Can KCM provide a digital copy of KCM's Requirements Management Plan?	**CLARIFICATION:** KCM intends to provide the Contractor with a digital copy of the Requirements Management Plan but will not be making this available to proposers.
35.	Subsection 2.A.3.5. Requirements Management	Is KCM expecting to continue the use of IBM Rationale Requisite Pro throughout the OBS/CCS project?	KCM plans to continue to use IBM Rational Requisite Pro throughout the OBS/ CCS Project to monitor and manage requirements.
36.	**Addendum 3 –** KCM Answer 31	Is it intended for the pro-posers to try to determine the exact Model and Revision level of each existing sign (needed to determine support for functionality) within the proposal phase, or only the successful contractor after award? The third bullet appears to require cost infor-mation to be provided in the proposal. If pricing is required in the proposal phase, where does KCM desire to see this cost infor-mation? KCM has stated that no costs elements can be contained in the proposal except in Volume 4.	**CLARIFICATION:** 1. The Luminator part numbers are 510204-101 (ODK) and 510453-003 (ODK II). The TwinVision unit is 916-001. 2. If additional pricing is required for optional updates to sign systems, then the additional cost should be added to the Priced Options page in Attachment B and a description of the work and technical requirements for making the updates should be described in the response to Part C of the RFP.
37.	Subsection 2.B.3. Level 1 Actors Glossary	The RFP document states that the RFCS will provide the DDU and FTP and that the requirements of this contract are to interface with the DDU and FTP. In the document, it is included as a subsystem of the "OBS subsystem". Should the FTP and DDU be part of the OBS? If so, in your UML	**CLARIFICATION:** When the term "OBS Subsystems" is used in the use cases, it is referring to *all* of the hardware and devices which are connected to the VLU, whether they are legacy or new equipment provided by the OBS/CCS Contractor. "OBS" or the "OBS system" has been used to describe the VLU and all interconnected subsystems.

Q#	SUBSECTION	QUESTION	ANSWER
		Use Cases, when you use the term "OBS" as an actor, are you implying any subsystem or those subsystems that are required as part of this proposal?	
38.	Subsection 2.B.4.1.5. RV5-Monitor System Health, 5.3 Testing		**ADD:** new paragraph to end of section ***On-board Diagnostics*** **KCM wishes to retain the ability to use a portable PC or PDA to monitor certain on-board devices, including the APC. To this end, the provided OBS shall provide a 12V accessory power outlet for use in powering these devices during such monitoring periods.**
39.	Subsection 2.B.4.1.5. RV5-Monitor System Health, 8. Issues		**ADD:** new paragraph to end of section **KCM intends to continue to periodically monitor each APC unit (per door) while in the vehicle is in revenue service by attaching a portable PC or PDA directly to the device. The installation plan for the provided APC units must consider how to make the device's interface jack physically available for such attachment.**

40.	Subsection 2.B.4.2.3. BO3-Manage Historical Data, 3.1 Basic Flow		**ADD:** to *Store data on a Landing Pad (Base Server)* step
			
			*Store data on **and distribute data from** a Landing Pad (Base Server)*
			
			The Landing Pad shall store data transferred from the Revenue Vehicle (RV).
			
			1) The Landing Pad will store Revenue Vehicle data inside the KC firewalls and on the KCWAN.
			
			2) The Landing Pad will be automatically backed up via a local device.
			
			   a) The OBS Administrator will be able to perform manual backup either locally or remotely.
			
			   b) The OBS Administrator will be able to manually or automatically restore the Landing Pad via a local or remote device.
			
			3) Raw data sets will be distributed to their respective servers in the form received from the vehicle.
			
			   a) Fare collection data will be passed directly to the fare collection database for the RFCS database processing.
			
			   b) Security camera video data will be passed directly to the security database.
			
			   c) Automatic Vehicle Monitoring (AVM) data will be passed directly to the Vehicle Maintenance server.

Q#	SUBSECTION	QUESTION	ANSWER

41.	Subsection 2.B.4.2.3. BO3-Manage Historical Data, 3.1 Basic Flow		**DELETE:** from *Parse OBS raw data* step
			
			1) ~~Raw data will be parsed, creating load records for each data load that is defined.~~
			2) ~~Raw data will be distributed to their respective servers in the form received from the vehicle.~~
			   a) ~~Fare collection data will be passed directly to the fare collection database for the RFCS database processing.~~
			   b) ~~Security camera video data will be passed directly to the security database.~~
			   c) ~~Automatic Vehicle Monitoring (AVM) data will be passed directly to the Vehicle Maintenance server.~~
			3) OBS raw data will be parsed and verified.
			
			REPLACE WITH:
			1) Raw **OBS** data will be parsed, creating load records for each data load that is defined.
			
			2) (Step deleted in its entirety)
			
			3) OBS raw data will be parsed and verified.

	Part C, SECTION 3 Level 2 Requirements		
42.	Subsection 3.B.4.2.4, CC4-Monitor Revenue Vehicles	What changes would you like to see with a map? With the routes?	**CLARIFICATION:** KCM's functional requirements related to tracking revenue vehicles on the AVL map display are detailed in Part C, Section 3.B, CC4-Monitor Revenue Vehicles.
	Part C, Appendix O Supplemental Information for CCS Upgrade Proposers		
43.	New Appendix		**CLARIFICATION:** Attachment Two to this addendum provides *Appendix O, Supplemental Information for CCS Upgrade Proposers: Communication Center Upgrade Code Assessment.* Appendix O provides information to potential CCS Upgrade proposers on the condition of the code and documentation for major portions of the KCM legacy CAD/AVL system: CAD/AVL, DACS, DACS Database, DCC and Historical database. **ADD:** **Appendix O, Supplemental Information for CCS Upgrade Proposers**, shown below in Attachment Two.

- **ADD:** adds language to the RFP.
- **CLARIFICATION:** provides a point of information that does not materially effect the RFP
- **DELETE:** deletes the language or item indicated.
- **REPLACE WITH:** replaces the language or item that is indicated for deletion immediately above.

E.3.2.1 CCS Replacement Benchmark Testing Process

1.   Purpose

The purpose of the CCS Replacement Benchmark Testing is to evaluate the proposer's existing CAD/AVL module for its:

User friendliness and performance of the product's user interface and

Compatibility with KCM functional and special requirements, as stated in Part C, Section **3.B. Level 2 Functional Requirements**.

The Benchmark Testing is intended to provide a comprehensive test of the proposer's existing CAD/AVL system. Proposers are not expected to develop new software or modify existing software for purposes of the evaluation.

Proposers participating in the Benchmark Testing shall retain ownership of all equipment and software provided and used during the system benchmark exercise. Proposers need not provide new equipment for the purposes of the demonstration.

2.   Notification

Finalists selected to participate in the CCS Replacement Benchmark evaluation will be notified as to when the benchmark tests will be performed. The County will endeavor to keep proposers apprised of the progress of the proposal evaluation process, and provide as much advance notification as to the timing of the benchmark evaluation as possible.

3.   Benchmark Agenda

Benchmark testing for a given proposer will be conducted individually and at different times from benchmark testing for other proposers. Each proposer will be assigned a three-day benchmark test period consisting of the following activities:

- Day 1: Arrive at KCM. Install and test benchmark equipment and software.
- Day 2: Demonstrate basic system functions and provide a brief (1 hour) system overview for KCM evaluators. KCM user testing (7 hours).
- Day 3: Remove equipment (morning). Depart KCM.

4.   Responsibilities

For the benchmark test, each selected proposer shall provide a benchmark environment including all software, hardware and data for the benchmark evaluation. The proposer's benchmark environment shall include a server, stand-alone network and user workstations for five KCM benchmark evaluators. Proposers shall deliver, set up, troubleshoot, demonstrate and remove all needed equipment and cabling for testing purposes. The proposer's benchmark team shall include staff to provide technical support during benchmark testing by KCM staff.

At least two weeks prior to beginning on-site installation work for the benchmark testing, the proposer shall submit to KCM for review a schedule and plan describing the installation activities, the benchmark testing, the equipment removal work, planned equipment installation drawings, power requirements, and an equipment list, including power and networking cables and connectors. Power requirements shall note any equipment that requires more than 110 volts AC.

At least one week prior to the start of the benchmark exercise, the proposer shall provide seven standard user manuals addressing system functions, the user interface and system administration functions.

KCM will provide the benchmark testing facility and the software evaluators.

5. Benchmark system

The benchmark environment shall emulate real-time CAD/AVL functions for a simulated in-service fleet of 500 or more revenue vehicles. The system shall demonstrate CAD/AVL user functions including, but not limited to:

- AVL display functions;
- Radio call management including PRTTs, RTTs, EAs, and simulated voice radio call setup.
- Schedule data reports;
- Incident management functions;
- Canned and custom text messages;
- System administration functions and user utilities.

The simulated environment shall provide adequate data and functionality to fully demonstrate the capability of the proposed CCS in comparison to KCM requirements, as described in Part C, Section 3.B. Level 2 Functional Requirements.

The benchmark system shall be configured and tested by the proposer prior to being installed at KCM to verify it operates correctly. System set up at KCM will include time for proposers to verify that the system is properly installed and operational to the proposer's specifications before the Benchmark Testing begins.

6. Testing

The benchmark testing shall consist of both structured testing intended to test specific system functions and unstructured testing. Proposers shall provide technical assistance to KCM during the benchmark testing and provide KCM with any existing system reports, summaries or other output requested by KCM.

System performance and response will be evaluated while the system is supporting a simulated processing and communications load. The benchmark testing may require a proposer's product to demonstrate any CCS functional or special requirements as stated in Part C, Section 3.B. Level 2 Functional Requirements, in Use Case Specification sequence, and in isolation or in combination with other UCS steps. The evaluation will include data entry with maximum and minimum values and erroneous data, as well as tests of system functions under various operational scenarios.

Any system failures or discrepancies identified during the benchmark will be documented by KCM. The demonstration period will not be extended due to problems, failures or delays attributable to either the proposer, the equipment installation or software failures. KCM reserves the right to exclude a proposer from further participation in the benchmark evaluation if the proposer is not able to perform the planned tests within the assigned time period. KCM reserves the right to extend the test duration, if delays are not attributable to the proposer. Any extension of the benchmark test duration will be subject to the proposer's concurrence.

7. Emergency Rescheduling

KCM reserves the right to reschedule the Benchmark Testing at any point in the process due to an emergency, adverse weather or other event that impacts the availability of KCM staff to conduct the benchmark tests.

E.3.2.2 CCS Upgrade Assessment Process

1. Purpose

The purpose of the CCS Upgrade Assessment is to:

- Familiarize the proposer's proposed CCS Upgrade team with the KCM legacy CAD/AVL system;
- Provide proposers with the opportunity to develop proposed Level 2 costs and schedule based on their assessment of the legacy system and code; and
- Evaluate the proposer's proposed CCS Upgrade team's technical capabilities and methods.

2. Notification

Finalists selected to participate in the CCS Upgrade Assessment will be notified as to when the Upgrade Assessment will be performed. The County will endeavor to keep proposers apprised of the progress of

the proposal evaluation process, and provide as much advance notification as to the timing of the Upgrade Assessment as possible.

3. Upgrade Assessment Requirements

    a. Legacy CAD/AVL System Inspection:

Upgrade proposer's access to KCM's legacy CAD/AVL source code will be contingent upon signing a non-disclosure agreement. KCM will provide an on-site space for the proposer's staff to review the source code. The Upgrade Assessment for a given proposer will be conducted individually and at different times from Upgrade Assessments for other proposers. Each proposer will be assigned a five day Upgrade Assessment time period which will consist of the following activities:

- Day 1: Arrive at KCM. System orientation with KCM technical staff.
- Day 2-5 Review legacy CAD/AVL system, code and documentation.
- Day 5: Depart KCM.

    b. CCS Upgrade Assessment Report:

Following the legacy CAD/AVL system inspection, proposers shall deliver a written Upgrade Assessment Report describing the following:

- A situational assessment/overview of the CCS Upgrade;
- A recommended approach, plan, process and schedule for upgrading each module/component and the system as a whole;
- A detailed analysis of the existing system and upgrade scope, including findings and issues identified during the system and code inspection and preliminary recommendations to address the issues.
- An alternatives analysis and draft recommendation for IBM/Informix conversion to Oracle;
- An alternatives analysis and draft recommendation for a Migration path from Visual Basic 6.
- A summary of the proposer's technical assessment.

The draft Upgrade Assessment Report shall be provided by the proposer no more than twenty (20) days following the last day of the proposer's assessment session at KCM. The report shall provide a summary of the proposer's technical assessment and shall not exceed thirty (30) pages in length. In addition to the Upgrade Assessment Report, proposers shall submit the proposed Level 2 Pricing, Level 2 schedule, and OBS/CCS Software Maintenance Pricing as described in Part A, Section 1.T.3, Response Content Requirements, Volume 4.

    c. Upgrade Assessment Briefing:

Proposers shall provide a one-hour briefing summarizing the outcome of their analysis for KCM staff in Seattle. The briefing will include an overview of each element of the CCS Upgrade Assessment Report described above.

If King County determines presentations are necessary in Evaluation Phase III as described in Part A, Subsection 2.E.3.3. Presentations, the oral presentations for CCS Upgrade proposers will include the Upgrade Assessment Briefing.

Appendix O

Supplemental Information for CCS Upgrade Proposers:

Communication Center Upgrade
Code Assessment Summary

Communication Center Upgrade

CODE ASSESSMENT SUMMARY

King County Department of Transportation
Metro Transit Division
Management Information &Transit Technology Section
Transit Systems Support Unit

August 24, 2004

Overview

- **Purpose**: to assist the OBS/CCS project team as they prepare for an RFP and solicit bids for a potential upgrade to the CAD/AVL system
- **Scope of Project**: to estimate the level of difficulty a potential vendor may or may not have working with the current CAD/AVL application
- **Evaluators**: qualified technical experts who are knowledgeable about the programming languages and the data
- **Limitations of Project**: the evaluators *have not* coded or supported the CAD/AVL application system
- **Problems to Overcome**: the upgrade path represents a potentially complex body of work
- **Particular Interest of the Assessment**: CAD/AVL, DACS, DACS Database, DCC, and Historical Database

Introduction

The purpose of this assessment is to assist the OBS/CCS project team as they are in the process of preparing an RFP and soliciting bids for a potential upgrade to the CAD/AVL system accompanied by a technical evaluation. The assessment estimates the level of difficulty a potential vendor may or may not have working with the current state of the CAD/AVL system code and/or documentation.   The evaluation was performed by qualified King County technical experts, knowledgeable about the programming languages and the data, but who have not actually coded or supported the CAD/AVL system.

The upgrade path has been discussed and evaluated extensively in the past two years by project staff and as an alternative to a full system replacement, presently offers business and strategic benefits to KC Metro. While technically feasible, the upgrade path represents a potentially complex body of work.

The particular interest for this assessment is the *condition of the code* and *documentation* for these major system components:

- CAD/AVL
- DACS
- DACS Database
- DCC
- Historical Database

CAD/AVL and IPC Objects

Suggested qualifications
Technical staff should have experience programming systems that use mapping objects since maps are an essential component of the system. Upgrading the code would require that the programmer have experience using sockets (note: windows API programming experience would be a plus). Concurrently, the upgrade staff should have knowledge of the transit data elements and be familiar with relationships between the data elements.

Condition of code
The overall condition of the CAD/AVL code is upgrade friendly, but will take some work. Visual Basic experts have found the code to be relatively easy to follow and understand. Original programmers of the code demonstrated a good adherence to structured programming principles making the flow of the program fairly predictable. The code has self-documented variable and functions names.

Both the CAD and AVL code make extensive use of comments where the IPC Objects is lacking comments. Fortunately most of the IPC Objects' classes are small and follow the same design pattern and utilize similar algorithms. The AVL code makes extensive use of objects. In addition, the remainder of the code is critically organized in BAS modules and forms. The CAD code uses very little object-oriented programming but again it is critically organized in BAS modules and forms. The CAD, AVL and IPC Objects code has proven to be well

organized and uses modular programming functionality. The IPC Objects code is fully object oriented with all functionality distributed in classes.

Problems to overcome
Findings showed that there was embedded SQL that would be best put into stored procedures. The data-bound controls in the CAD and AVL would cause some problems with upgrading. These drag and drop controls don't use much written code and could cause problems due to the fact that they are not easily translated to VB.NET. There are out-of-date RDO and DAO in the CAD and AVL code.   .NET class libraries would be better than using the window API calls currently being operated. A data access wrapper class is preferred to make the code more consistently modular. Error handling and logging is almost nonexistent making debugging and trouble shooting a bit tedious during the upgrade process.

DACS & DCC

Suggested qualifications
Assuming that the upgrade would remain in the C programming language, experience in using and taking advantage of C compiler and debugger techniques specific to the chosen operating system would be ideal. Experience in object oriented programming is a must. The technical staff would also require knowledge of Digi boards, specifics regarding radio signals and data transferring protocols.

Condition of DACS code
The overall condition of the code is in good condition for upgrade. Traversing through the code can be done with ease due to a consistent programming format and labeling. The full function documentation and step by step process documentation have proven to aid in the understanding of the code. It is also well organized and as a result predictable. The modularized programming and documentation allow the upgrader to locate functions and procedures with ease. There is standardized programming throughout and appears to have followed the style for ANSI C coding.

Condition of DCC code
The overall condition of the code is adequate for upgrading. Unlike the DACS code, traversing is not overly friendly *(this is a style preference)*. Libraries define the functions and procedures. Consistent stylization assists in the understanding of the code. Most of the functions are documented. Those that are not are not too much of a challenge. The documentation within the code is inconsistent where some parts of the code lack the desired documentation.   The are also a few issues documented within the code where certain algorithms have not been handled elegantly. The code has an object-oriented feel and leans more towards the ANSI C++ style for coding. Clear functional requirements and specifications that follow the documentation within the code if available, would streamline this task.

Problems to overcome
As part of the upgrade effort, a clean up of commented code needs to happen for clarity and readability sake. Currently the code makes extensive use of DOS operating system timers throughout the program. Because the data is updated in time intervals, an algorithm using platform specific timers could be hit or miss.   For example, UNIX style timers would be more feasible than Windows timers. Portability is also questionable because of the use of system specific function calls, which would cause the program not to compile on other operating systems.

Historical Database Architecture

Database Table Structures
The database tables are in standard types for Informix and will allow for conversion or upgrade without difficulty. While it may take time for any outside group to understand the way that the short column names are utilized in the database, tables and column names are specifically understandable to one who has worked with the system. Most tables have primary keys and unique indexes for ease of translation and conversion.

Procedural code
Technical experts have found the code in the database to have good structure. There is a chance that variable names and column names could be confused in the analysis since the database column and variable names are short (*for example, one column has the name of sp_id*). The procedures will require a process understanding to map out the code.

Documentation

Documentation for all of the system components is available. While several documents have been located and used most of them are out of date. There have been numerous fixes and modifications to the systems that have not been documented. As a result, most of these documents are only somewhat useful to those intending to upgrade the system. Below is a list of the documentation along with their description. They have been grouped according to the appropriate system components.

CAD/AVL:

<table>
<tr><td>

NOTE: The *"hollow" bullets shown below denote documentation of limited usefulness, and not completely current.*

</td></tr>
</table>

- ♦ <u>Users Manual</u> provides direction and tips for coordinators.
- ♦ An <u>HTML</u> version replicates the Users Manual and provides instructions for procedures and system management utilities.
- ♦ The <u>AVL Workstation - DACS Interface Design</u> document (1991) provides specifications for content of messages and protocols.
  - ◊ A <u>Theory of Operation</u> document (1994) describes the original components and inter-operations.
  - ◊ The <u>APC/Radio Interface</u> documents (1998) include design, protocols, programmers guide, table descriptions and data flows.

DACS & database:

- ♦ The AVL Workstation - DACS Interface Design document (1991) provides specifications for content of messages and protocols.
- ♦ Schema, layout and stored procedures have been drawn directly from the DACS database.
- ♦ The <u>DCC – DACS Interface Description</u> document (1991) provides specifications for content of messages and protocols.
- ♦ The <u>Design Document for DCC</u> (1993) includes interfaces, data flow and state diagrams.
  - ◊ The <u>DACS Software Reference Manual</u> (1992) is a programmers guide with design of each component, glossary and common scenarios ("threads"). However, undocumented modifications have been made to the interface processing.
  - ◊ The <u>DACS Module Descriptions</u> document (1992) includes functions and descriptions of type of service. However, new tables are not reflected in the documentation.
  - ◊ The <u>DACS Directory Tree</u> document (1994) includes a listing of files and code. However, undocumented modifications have been made to the interface processing.
  - ◊ A <u>Theory of Operation</u> (1994) document describes the original components and inter-operations.
  - ◊ The <u>APC/Radio Interface</u> documents (1998) include design, protocols, programmers guide, table descriptions and data flows.

DCC:

- ♦ A description of the <u>Data Communications Controller</u> is filed with the source code.
- ♦ The <u>DCC – DACS Interface Description</u> document (1991) provides specifications for content of messages and protocols.
- ♦ The <u>Design Document for DCC</u> (1993) includes overall design, structure, interfaces, data flow and state diagrams.
  - ◊ A <u>Theory of Operation</u> document (1994) describes the original components and inter-operations.
  - ◊ The <u>APC/Radio Interface</u> documents (1998) include design, protocols, programmers guide, table descriptions and data flows.
  - ◊ The Mobile Data Unit (MDU) <u>Design Document</u> (1993) and <u>MDU/MDT Troubleshooting & Maintenance Guide</u> (1993) include information on interfaces. However, some modifications have been made to signpost reception and internal algorithms that are not reflected in the documents which were produced in 1993.

Historical database:

Schema, layout and stored procedures have been drawn directly from the <u>DACS historical database</u>.

Glossary of Terms:

<table>
<tr><td>

NOTE: Terms and acronyms not included below are defined in *Part C, **Appendix M. Glossary of Terms and Acronyms***.

</td></tr>
</table>

DAO: Data Access Objects (1-tier)

Allow VB (Visual Basic) applications to talk to a database (the JET Engine) via ODBC (Open Database Connectivity). DAO was Microsoft's first object oriented solution for the manipulation of databases using the Jet Database Engine. The JET engine duplicates the functionalities of ODBC, and thus does not add much value. As the JET engine is generic, many of Oracle's features would not be accessible. Microsoft is currently phasing out this method.

RDO: Remote Data Objects (2-tier)

Allow VB applications to talk to a relational database (various Relational DBMSs) via ODBC. RDO is an interface to remote RDBMS via OBDC. One needs the Enterprise Edition of Visual Basic to use RDO. Microsoft is encouraging developers to migrate their RDO programs to ADO and OLE-DB.

Digiboard or digicard is a generic name for a serial port card made by Digi International. While the typical PC comes with two serial ports, a compatible digiboard has the capability to add an additional four, eight, or 16 additional serial ports to a system.

A common use of a digiboard is to expand the services of a remote access server such as Microsoft RAS (Remote Access Server) for NT. It can also be used to expand a terminal server <http://WhatIs.techtarget.com/definition/0,,sid9_gci213123,00.html> that accepts serial connections. Digiboards work with Windows, NetWare and most UNIX operating systems.

IPC: interprocess communications. See the definition for *IPC Objects* below.

IPC Objects: The Microsoft® Windows® operating system provides mechanisms for facilitating communications and data sharing between applications. Collectively, the activities enabled by these mechanisms are called *interprocess communications* (IPC). IPC objects are programming mechanisms that utilize IPC.